

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference M-4849	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 00/ 40838	International filing date (day/month/year) 07/09/2000	(Earliest) Priority Date (day/month/year) 09/09/1999
Applicant THE GILLETTE COMPANY		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☒ because this figure better characterizes the invention.

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☐ None of the figures.

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01M6/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 00 01022 A (EVEREADY BATTERY INC) 6 January 2000 (2000-01-06) page 10, line 4 -page 17, line 10; claims 1-12	1, 16
A	US 5 869 205 A (MICK ALVIN R ET AL) 9 February 1999 (1999-02-09) column 1, line 63 -column 5, line 53; claims 1-25	1-15
A	FR 2 622 359 A (ACCUMULATEURS FIXES) 28 April 1989 (1989-04-28) page 3, line 21 -page 5, line 20; claims 1-7	1-54
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

14 February 2001

Date of mailing of the international search report

21/02/2001

Name and mailing address of the ISA

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De Vos, L

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
/ A	WO 97 16863 A (ESHRAGHI RAY R) 9 May 1997 (1997-05-09) page 3, paragraphs 1-3 page 8, paragraph 1 -page 10, paragraph 2; claims 1-20 ---	1-54
/ A	US 5 532 078 A (REDEY LASZLO I ET AL) 2 July 1996 (1996-07-02) column 12, line 28 -column 13, line 63 ---	1,16,34
/ A	GB 2 231 196 A (LANG TSAI ING;TUNG KWAN CHI) 7 November 1990 (1990-11-07) page 2, line 31 -page 3, line 31; claims 1-5 ---	1,16
/ A	US 5 677 080 A (CHEN JAMES CHIN-MING) 14 October 1997 (1997-10-14) column 5, line 22 -column 6, line 51 ---	1,16
/ A	US 1 995 294 A (JOHN R.CULLEN) 26 March 1935 (1935-03-26) page 2, column 1, line 39 -page 3, column 1, line 50; claims 1-10 -----	1,16,34

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Present claims 1-54 relate to a cylindrical primary alkaline battery defined by the value of $(S/V)^2$ wherein S is the separator surface area and V the cathode volume .

The use of these parameters in the present context is considered to lead to a lack of clarity within the meaning of Article 6 PCT. It is impossible to compare the parameters the applicant has chosen to employ with what is set out in the prior art. In such prior art documents a high interface area between anode and cathode of the cell is only characterised by the form of the separator surface without specifying the dimensions. In view of the extended complicated surface structures of these separators, it is very difficult to calculate these dimensions, let alone to calculate an $(S/V)^2$ value based on such dimensions. The lack of clarity is such as to render a meaningful complete search impossible.

Consequently, the search has been restricted to: cylindrical and preferably primary alkaline cells with high interface between cathode and anode obtained while using separators with great surface area in contact with cathodes of relatively small volume as represented on fig 2, 5, 6 and 7.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/40838

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/40838

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0001022	A	06-01-2000	US 6074781 A AU 4715699 A	13-06-2000 17-01-2000
US 5869205	A	09-02-1999	NONE	
FR 2622359	A	28-04-1989	NONE	
WO 9716863	A	09-05-1997	US 6004691 A AU 1116097 A US 5916514 A US 5928808 A	21-12-1999 22-05-1997 29-06-1999 27-07-1999
US 5532078	A	02-07-1996	US 5283135 A US 5340668 A AU 666140 B AU 2778192 A CA 2120770 A EP 0649569 A JP 7500216 T WO 9307650 A US 5536593 A MX 9205798 A ZA 9207752 A	01-02-1994 23-08-1994 01-02-1996 03-05-1993 15-04-1993 26-04-1995 05-01-1995 15-04-1993 16-07-1996 01-07-1993 19-04-1993
GB 2231196	A	07-11-1990	NONE	
US 5677080	A	14-10-1997	NONE	
US 1995294	A	26-03-1935	NONE	